



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/014262 A1

(51) International Patent Classification⁷: B29C 51/26

Milan (IT). **MARIANI, Davide** [IT/IT]; Via C. Miola 47,
I-21047 Saronno Varese (IT).

(21) International Application Number: PCT/EP2004/006605

(74) Agent: COLOBERTI, Luigi; Via E. De Amicis, 25,
I-20123 Milan (IT).

(22) International Filing Date: 18 June 2004 (18.06.2004)

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, VZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) **Priority Data:**
MI2003 A 001520 24 July 2003 (24.07.2003) IT

(71) **Applicant (for all designated States except US):** **TECNOS S.P.A.** [IT/IT]; Via della Merlata, I-20014 Nerviano Milan (IT).

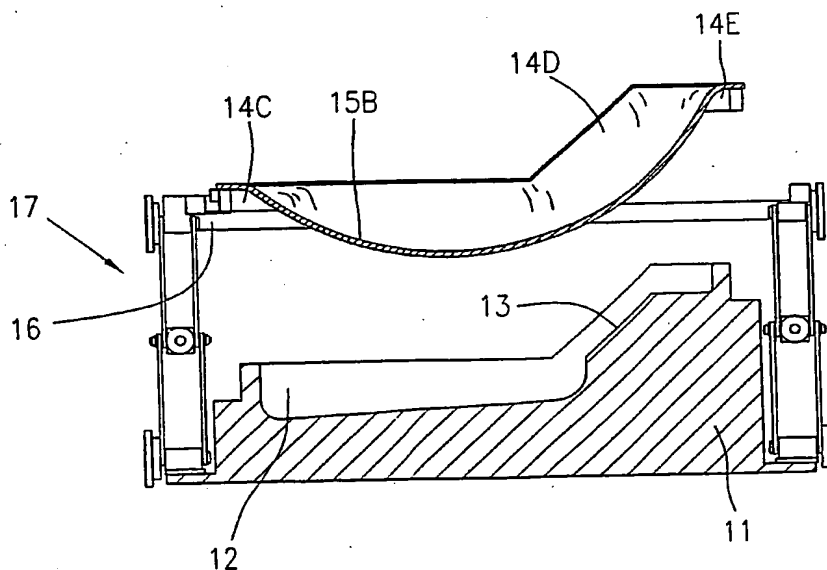
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) **Inventors/Applicants (for US only):** CASTIGLIONI, Maurizio [IT/IT]; Via E. Filippini, 12, I-20151 Busto Arsizio Varese (IT). CRIVELLI, Maurizio [IT/IT]; Via L. Chiesa, 3, I-20010 Pogliano M.se Milan (IT). D'ADDA, Luciano [IT/IT]; Via Europa, 36, I-20010 Pogliano M.se

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR THERMOFORMING HOLLOW BODIES OF THERMOPLASTIC MATERIAL



(57) Abstract: A method and an apparatus for thermoforming bodies in plastic material by means of a mold (11). A sheet (115) of thermoformable plastic material is heated to a plasticization temperature, supporting it along its peripheral edges. The heated sheet (15) is pre-shaped to create an enrichment of material, performing a sag by relative movements for approaching, raising and/or rotating its peripheral edges, maintaining the plastic sheet (15) in a suspended condition. The pre-shaped sheet (15) is then brought into close contact with the mold (111) and vacuum-formed making it adhere to the shaping surface (12) of the mold (11).

BEST AVAILABLE COPY

WO 2005/014262 A1

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,

IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- of inventorship (Rule 4.17(iv)) for US only

Published:

- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.